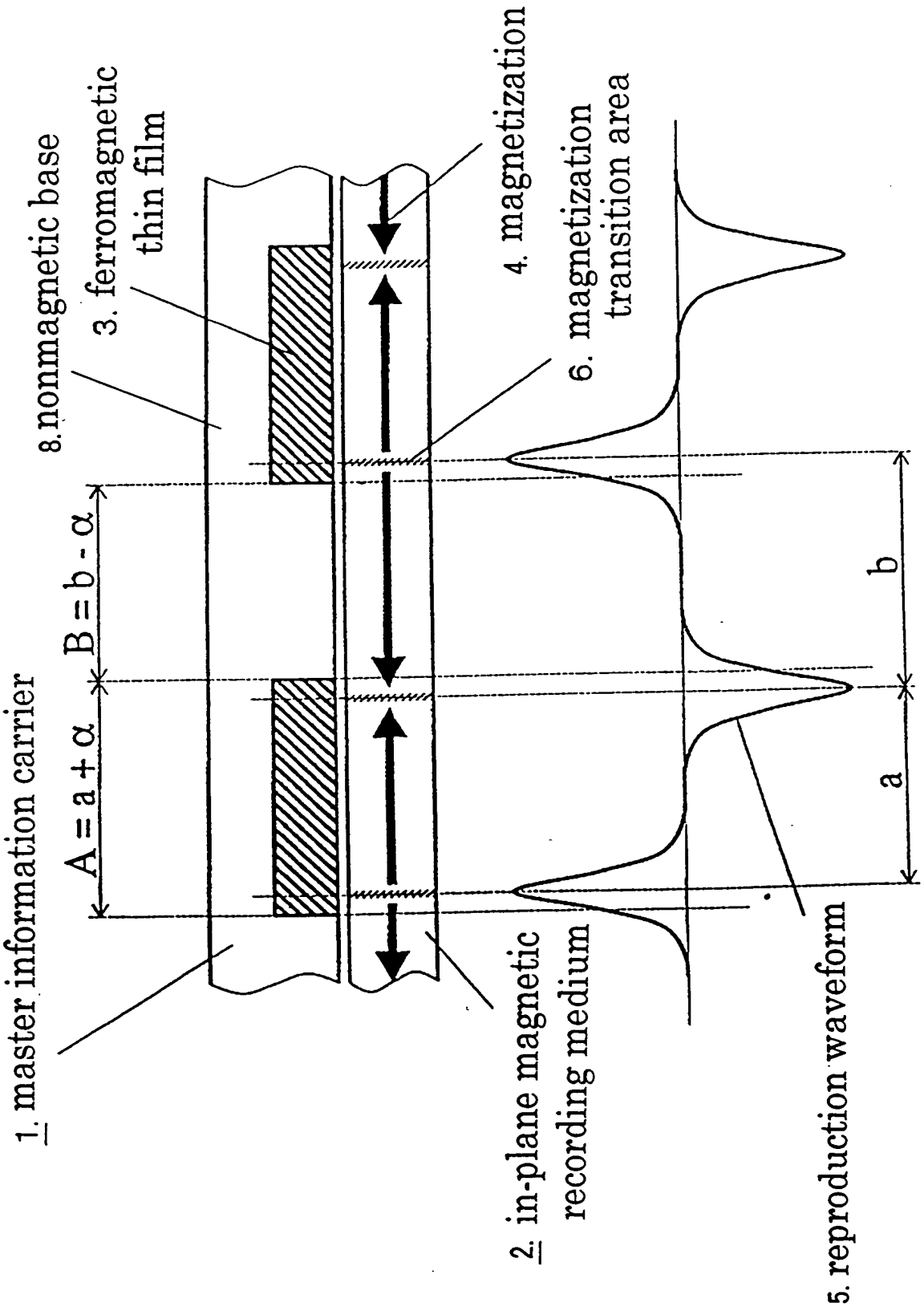

1. master information carrier
8. nonmagnetic base
3. ferromagnetic thin film
4. magnetization
6. magnetization transition area
A = a + α
B = b - α
b
a
2. in-plane magnetic recording medium
5. reproduction waveform

FIG. 1

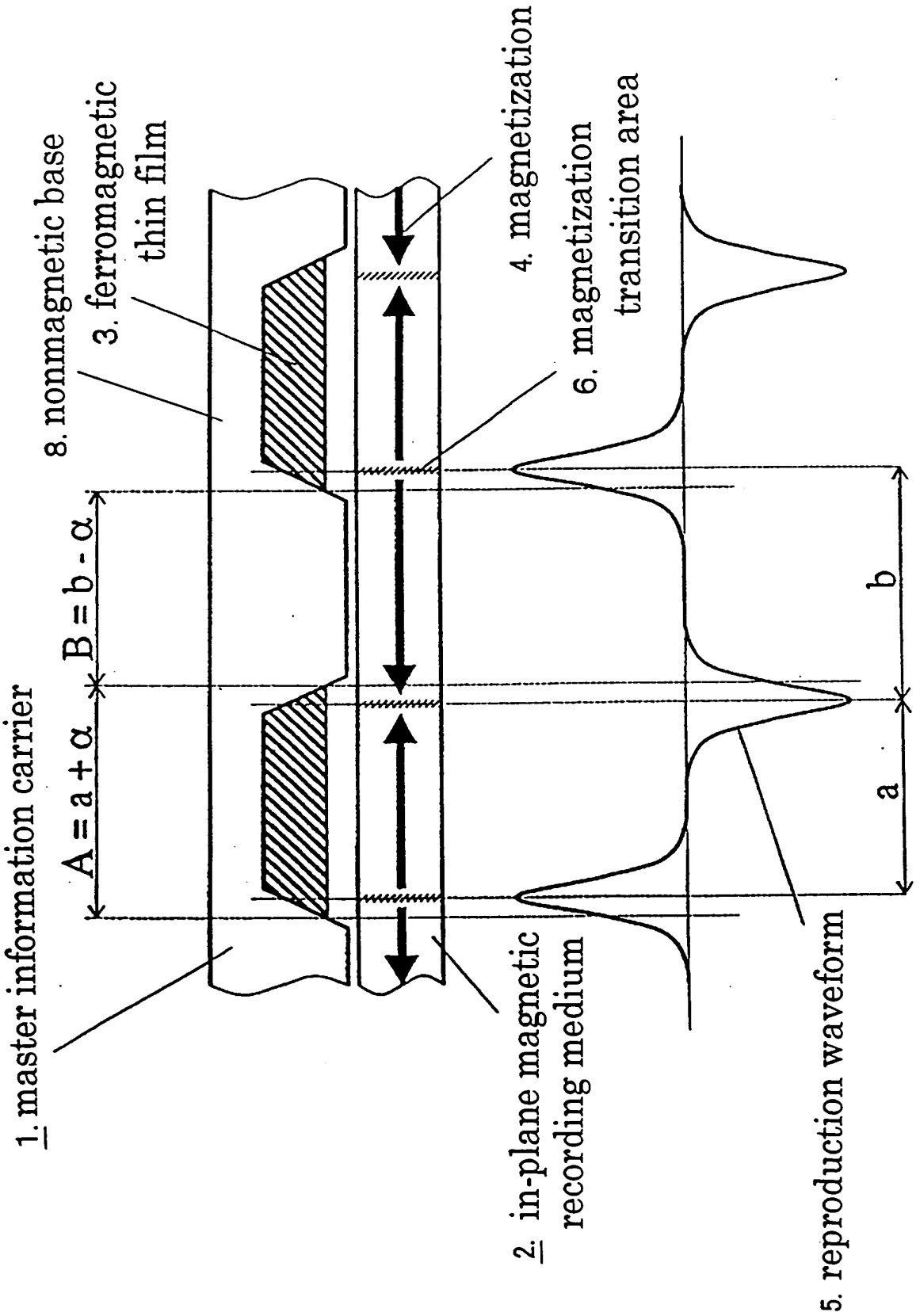

1. master information carrier
2. in-plane magnetic recording medium
3. ferromagnetic thin film
4. magnetization
5. reproduction waveform
6. magnetization transition area
8. nonmagnetic base
A = a + α
B = b - α
a
b

FIG. 2

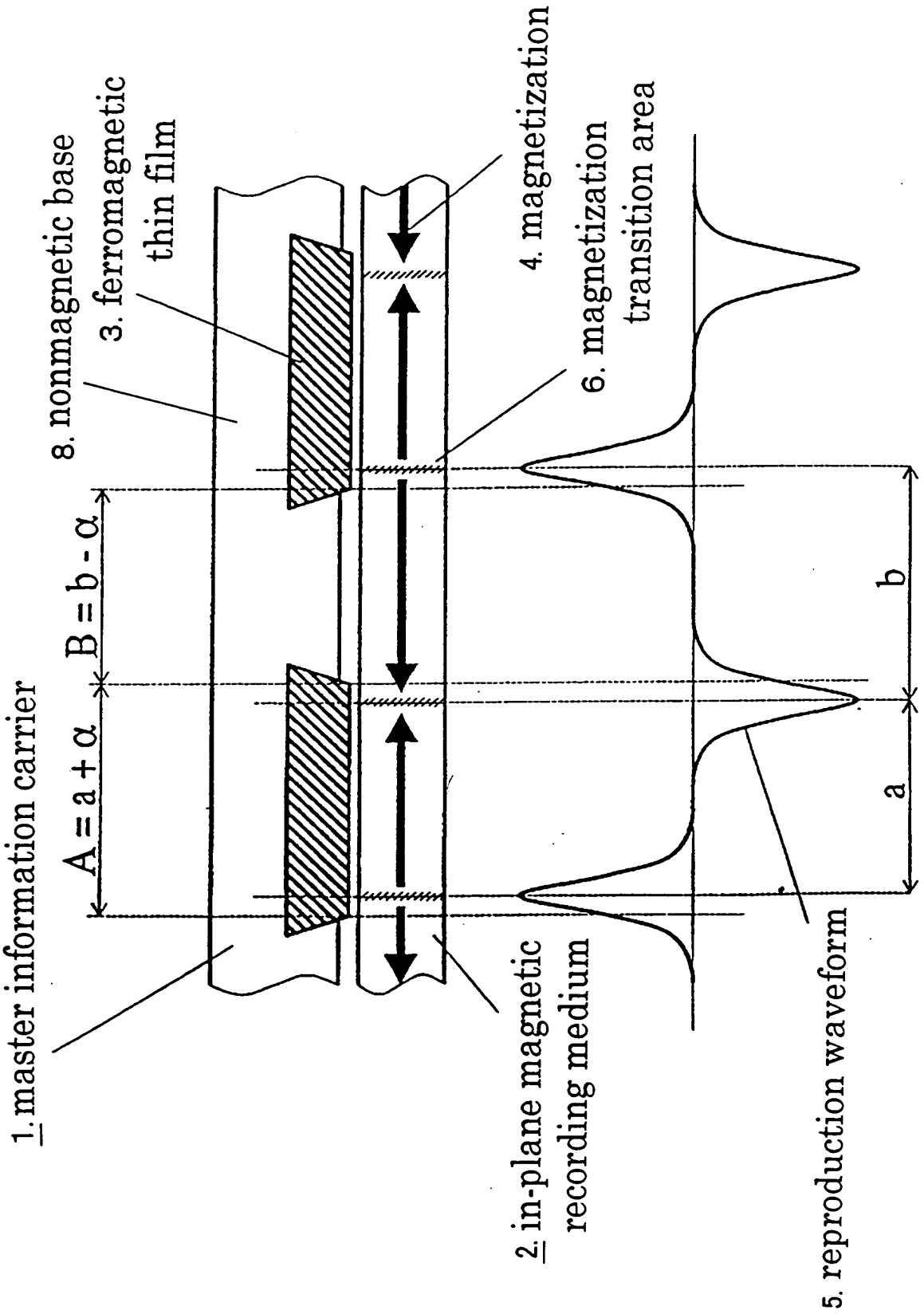

1. master information carrier
A = a + α
B = b - α
8. nonmagnetic base
3. ferromagnetic thin film
4. magnetization
6. magnetization transition area
2. in-plane magnetic recording medium
5. reproduction waveform
a
b

FIG. 3

FIG. 4A

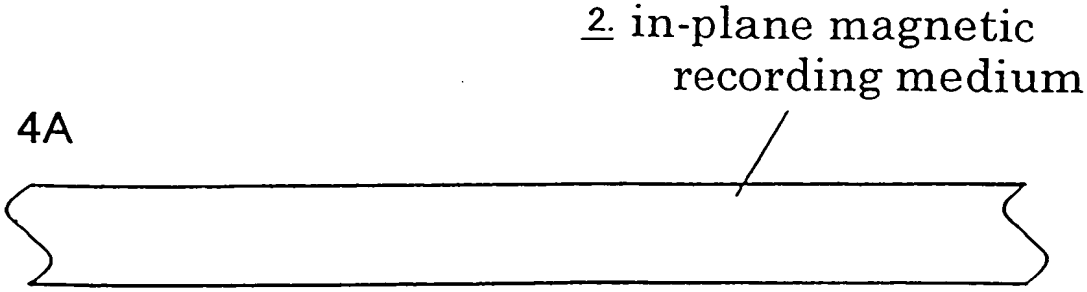


FIG. 4B

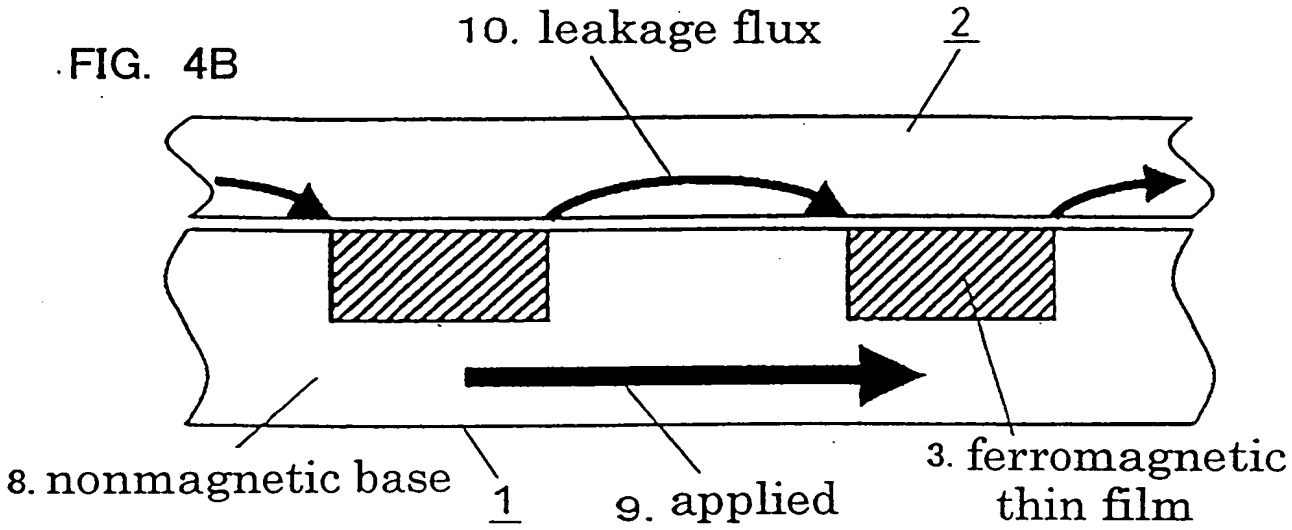


FIG. 4C

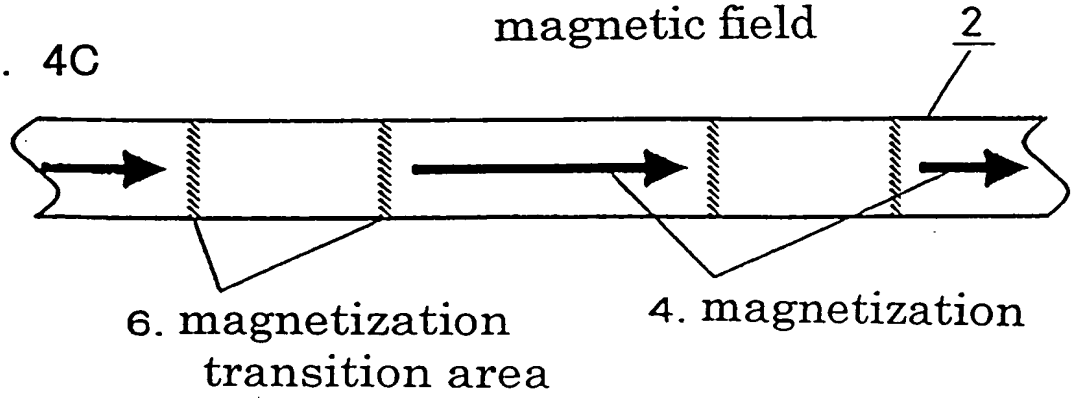


FIG. 5A

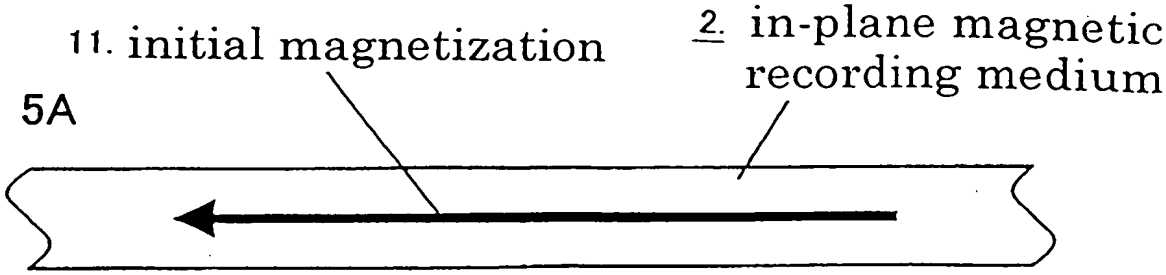


FIG. 5B

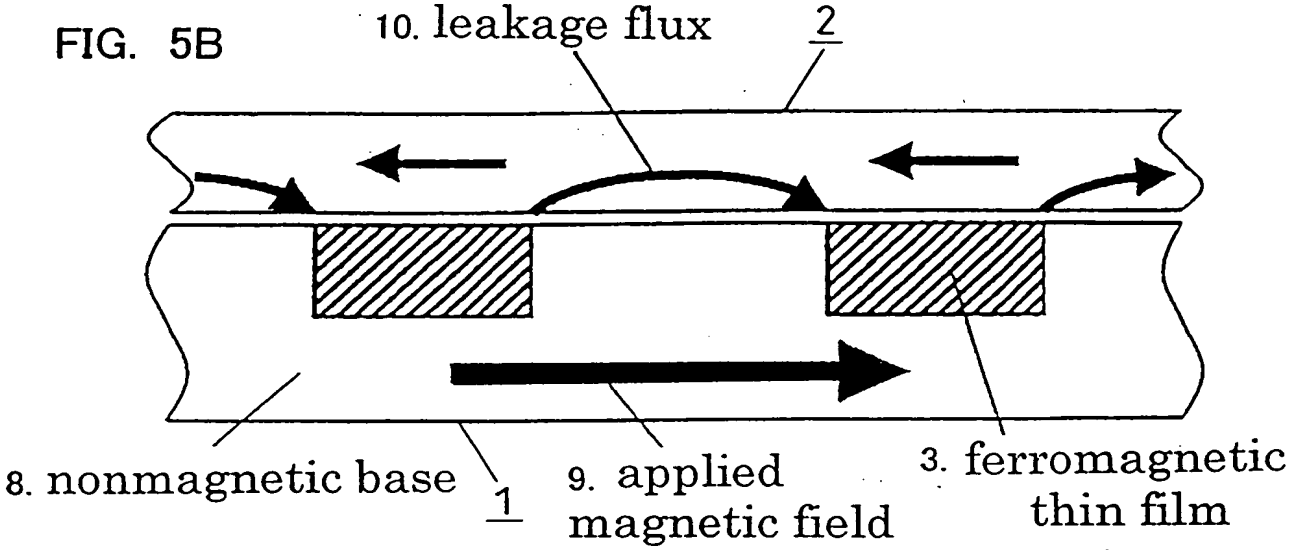
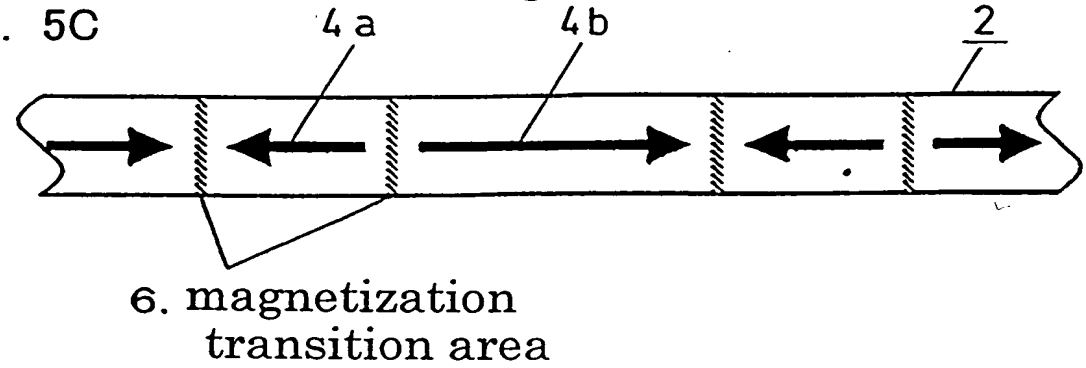


FIG. 5C



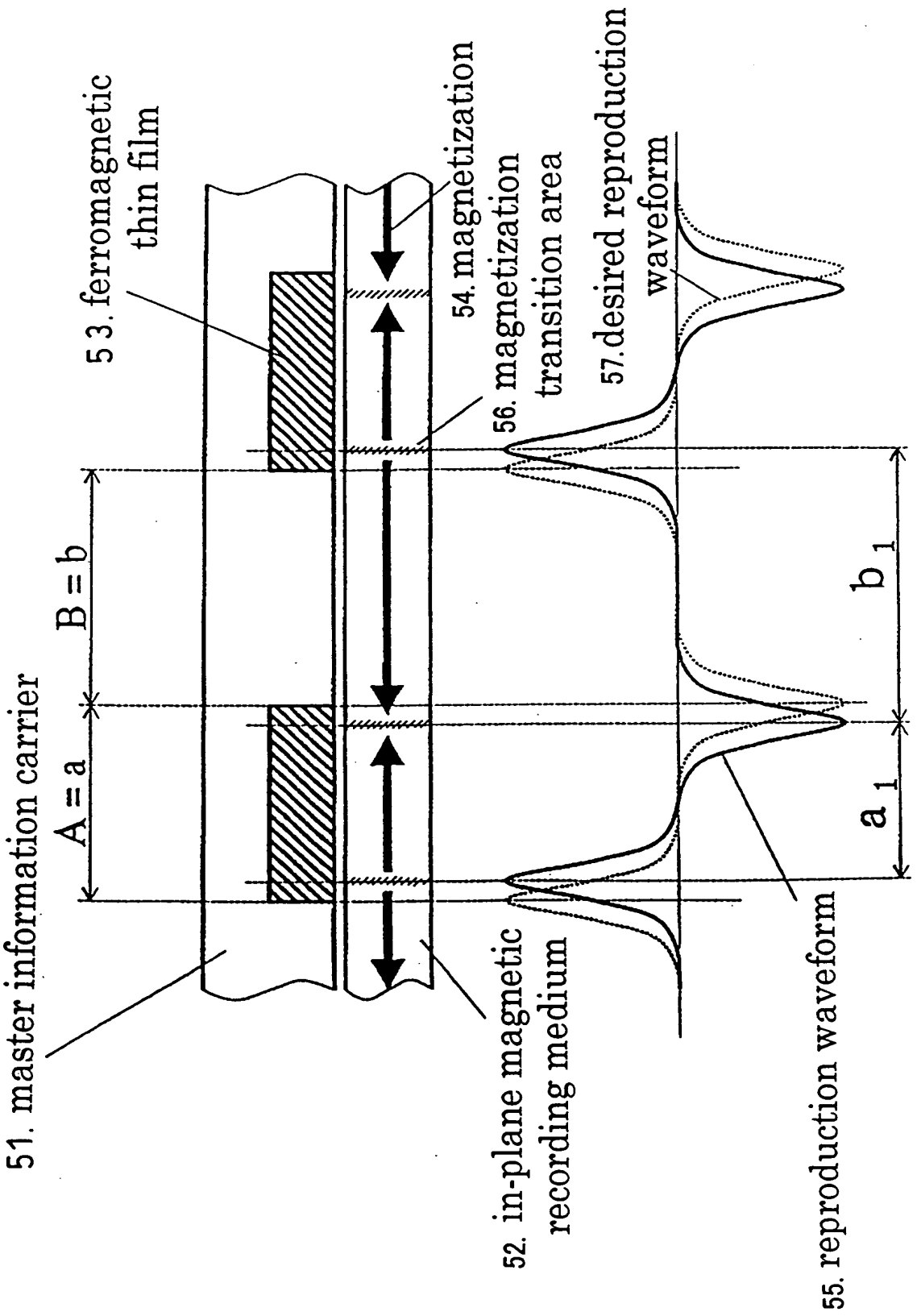

51. master information carrier
53. ferromagnetic thin film
54. magnetization
56. magnetization transition area
57. desired reproduction waveform
A = a
B = b
a 1
b 1
52. in-plane magnetic recording medium
55. reproduction waveform

FIG. 6

FIG. 7A

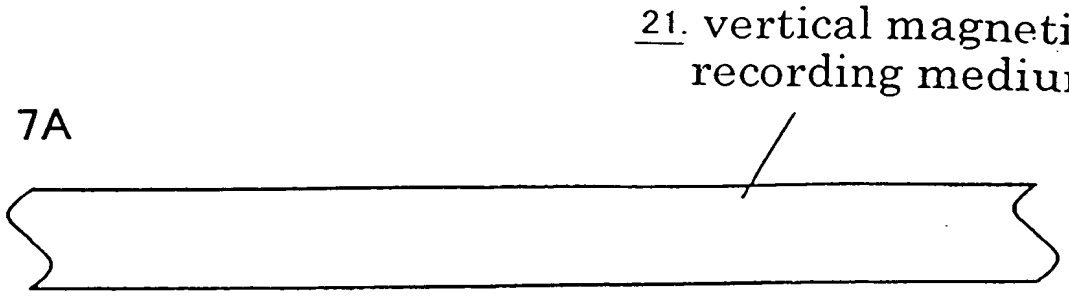


FIG. 7B

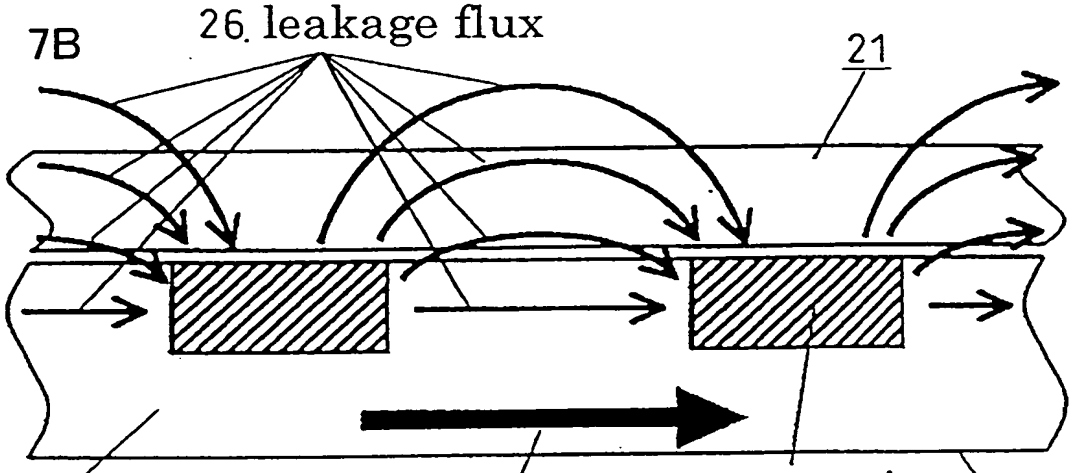
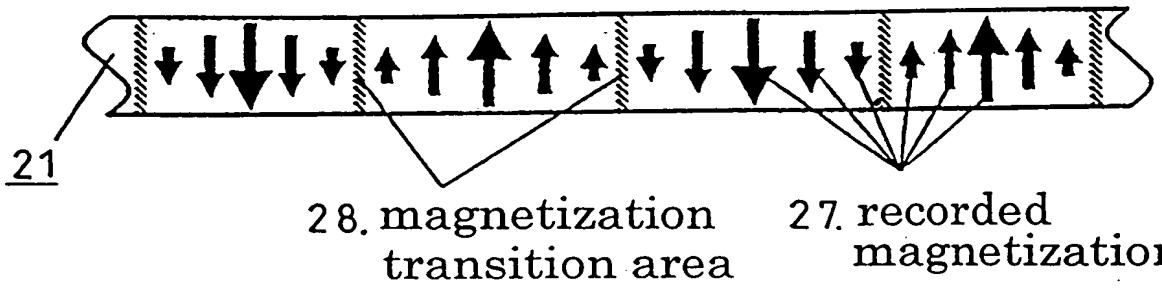


FIG. 7C



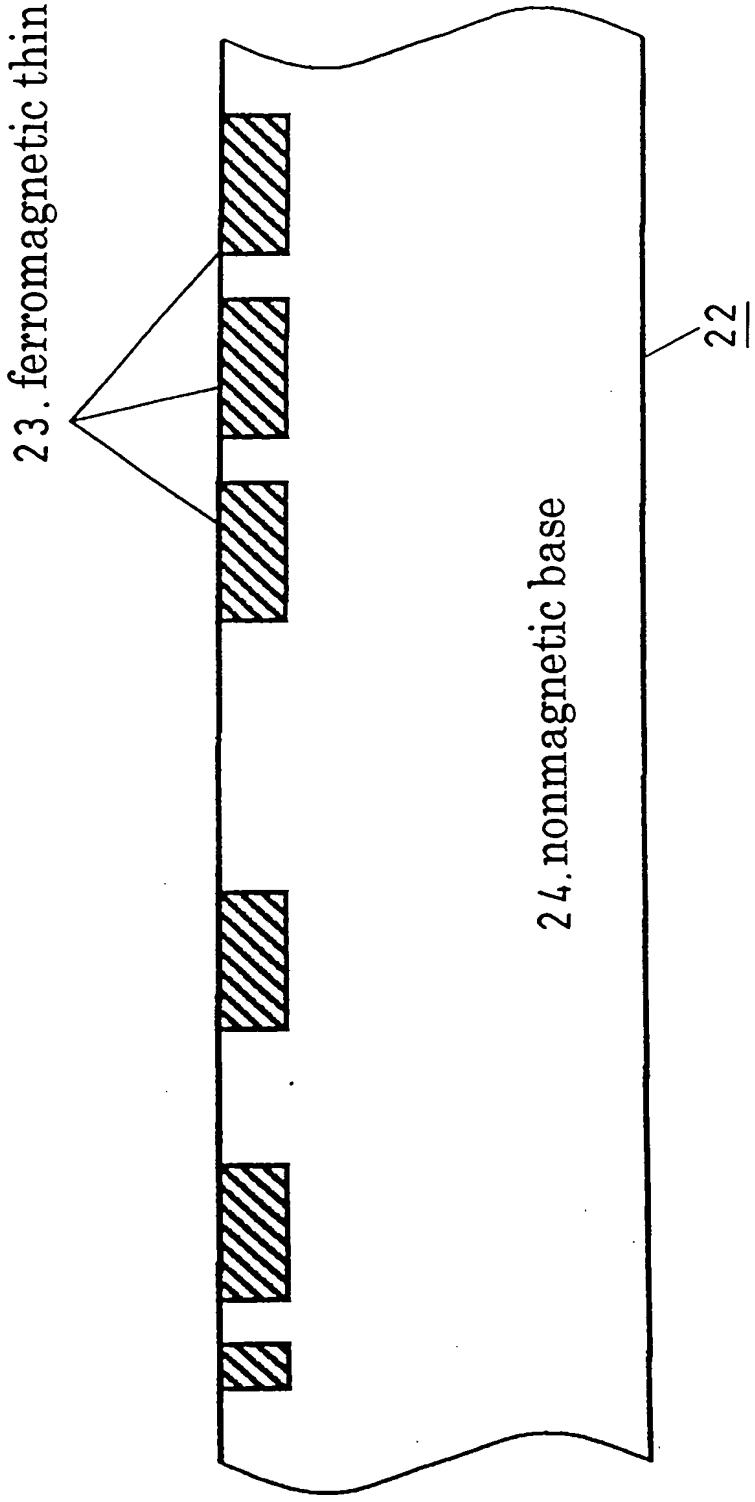


FIG. 8

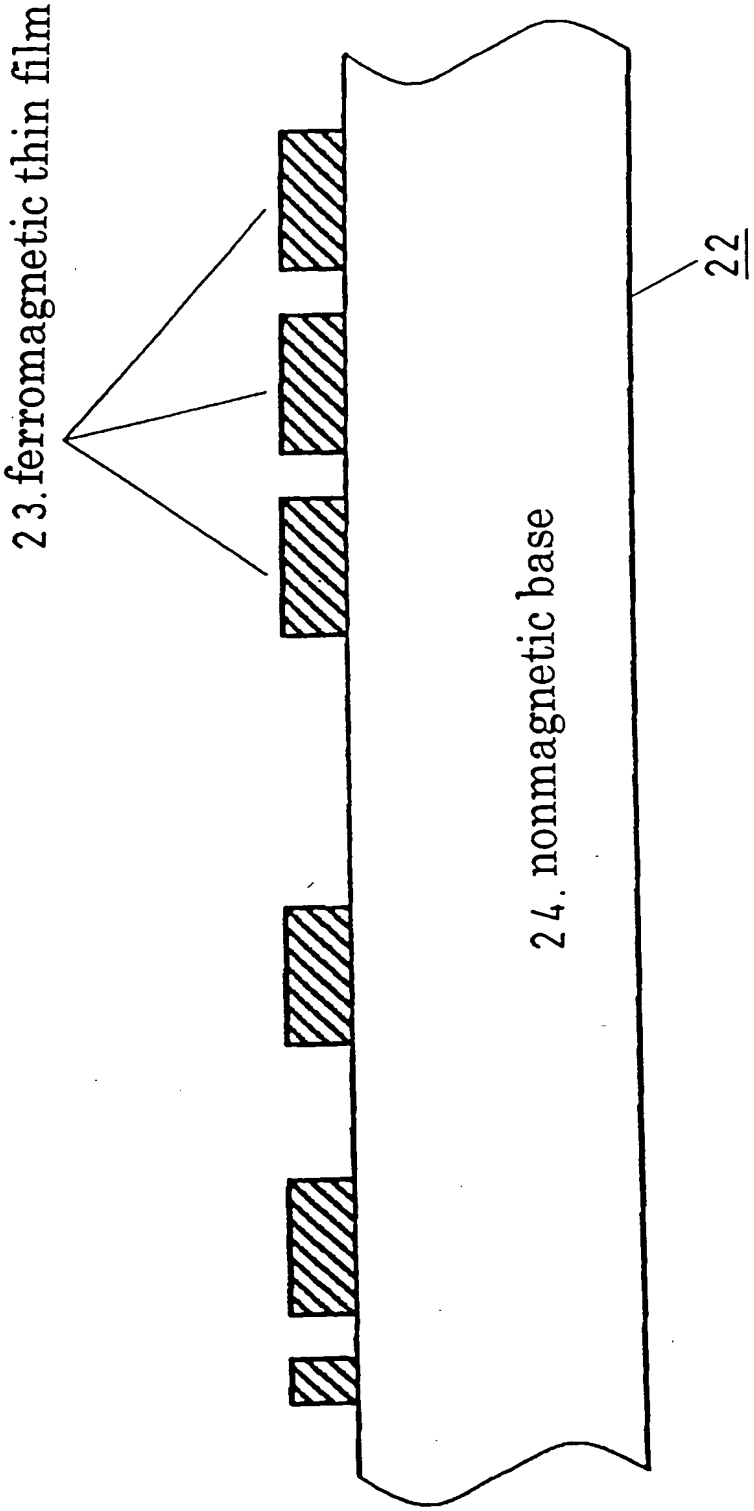


FIG. 9

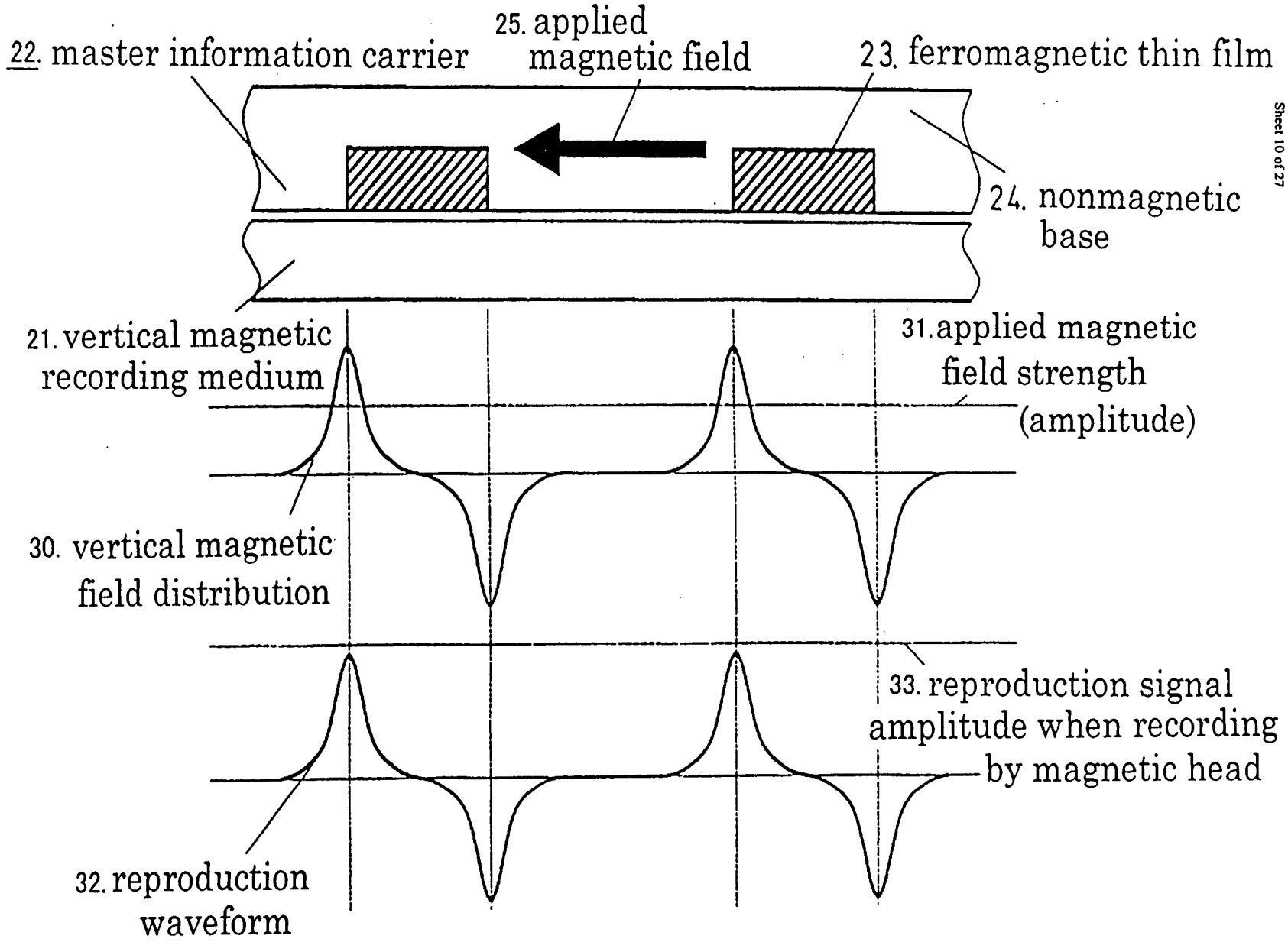

22. master information carrier
25. applied magnetic field
23. ferromagnetic thin film
24. nonmagnetic base
21. vertical magnetic recording medium
31. applied magnetic field strength (amplitude)
30. vertical magnetic field distribution
33. reproduction signal amplitude when recording by magnetic head
32. reproduction waveform

FIG. 10

Inventor: ISHIDA et al.
Docket No.: 10873.697USWO
Title: MASTER INFORMATI ARRIER AND METHOD FOR MANUFACTURING
MAGNETIC DISC USING TH ME
Attorney Name: Douglas P. Mueller
Phone No.: 612.371.5237
Sheet 10 of 27

FIG. 11A

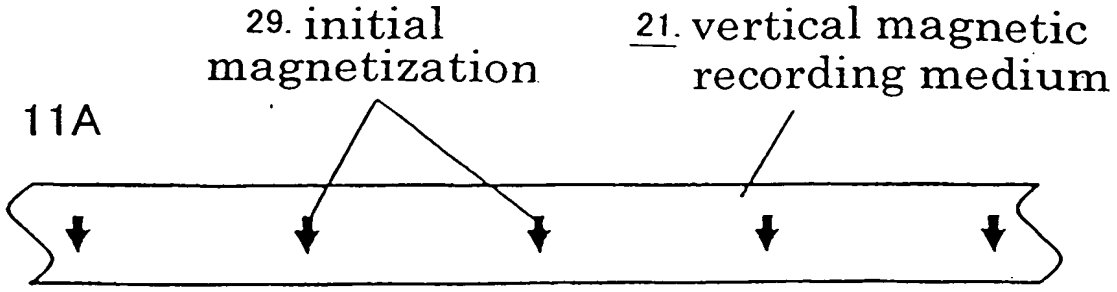


FIG. 11B

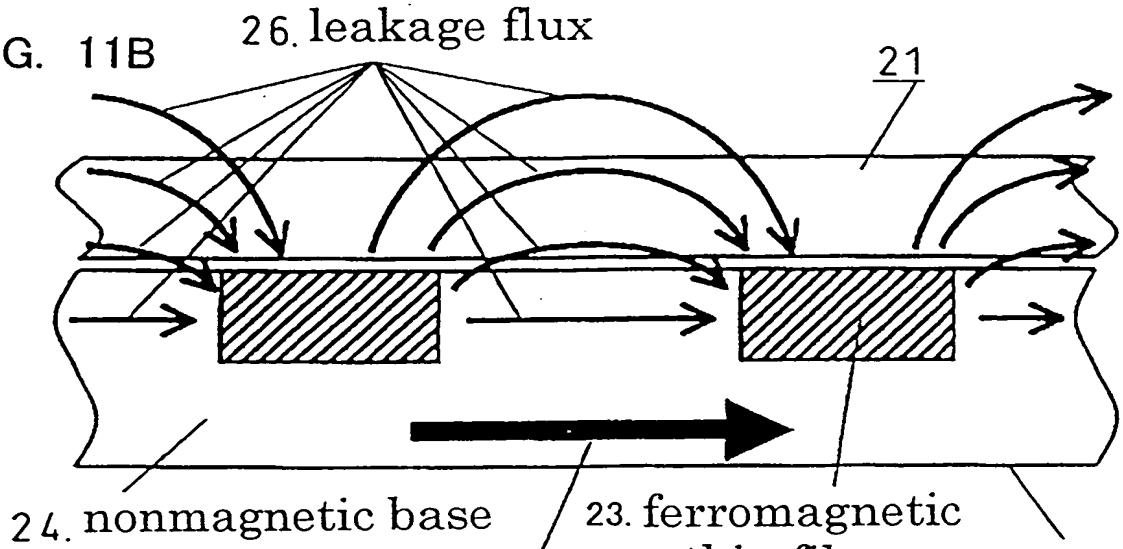
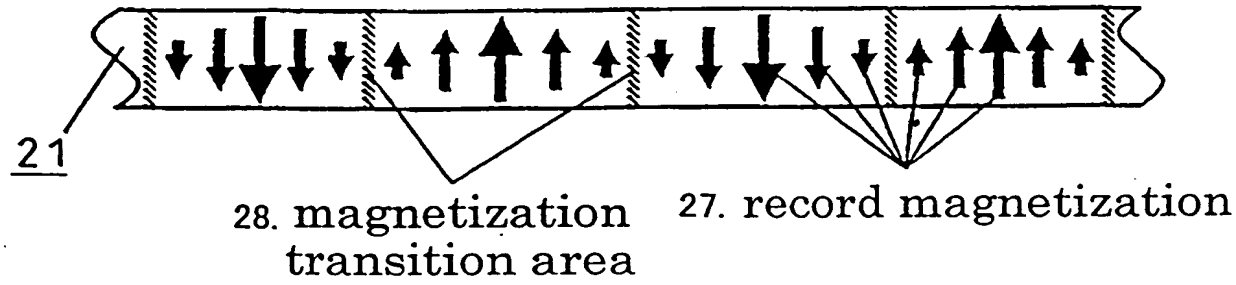


FIG. 11C



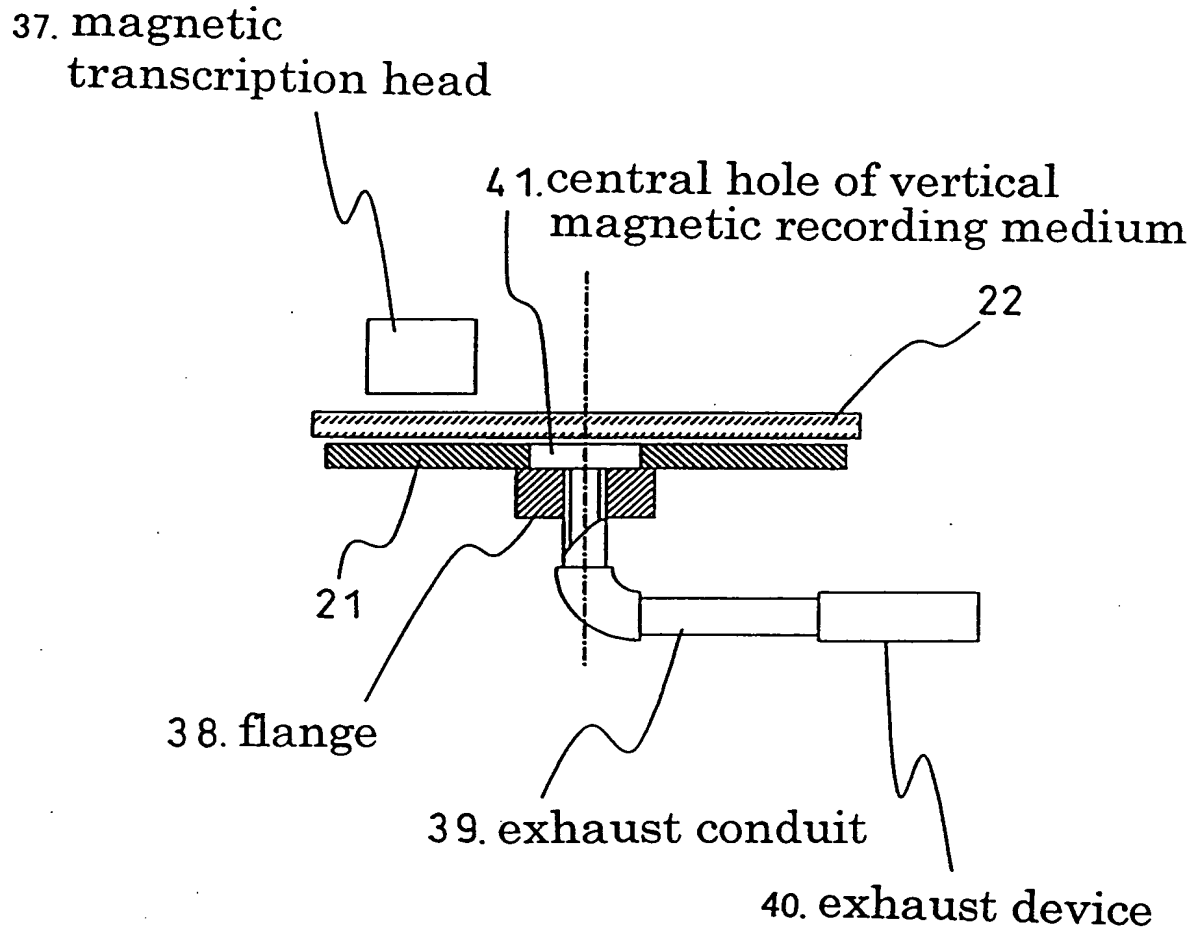

37. magnetic transcription head
41. central hole of vertical magnetic recording medium
22
21
38. flange
39. exhaust conduit
40. exhaust device

FIG. 12

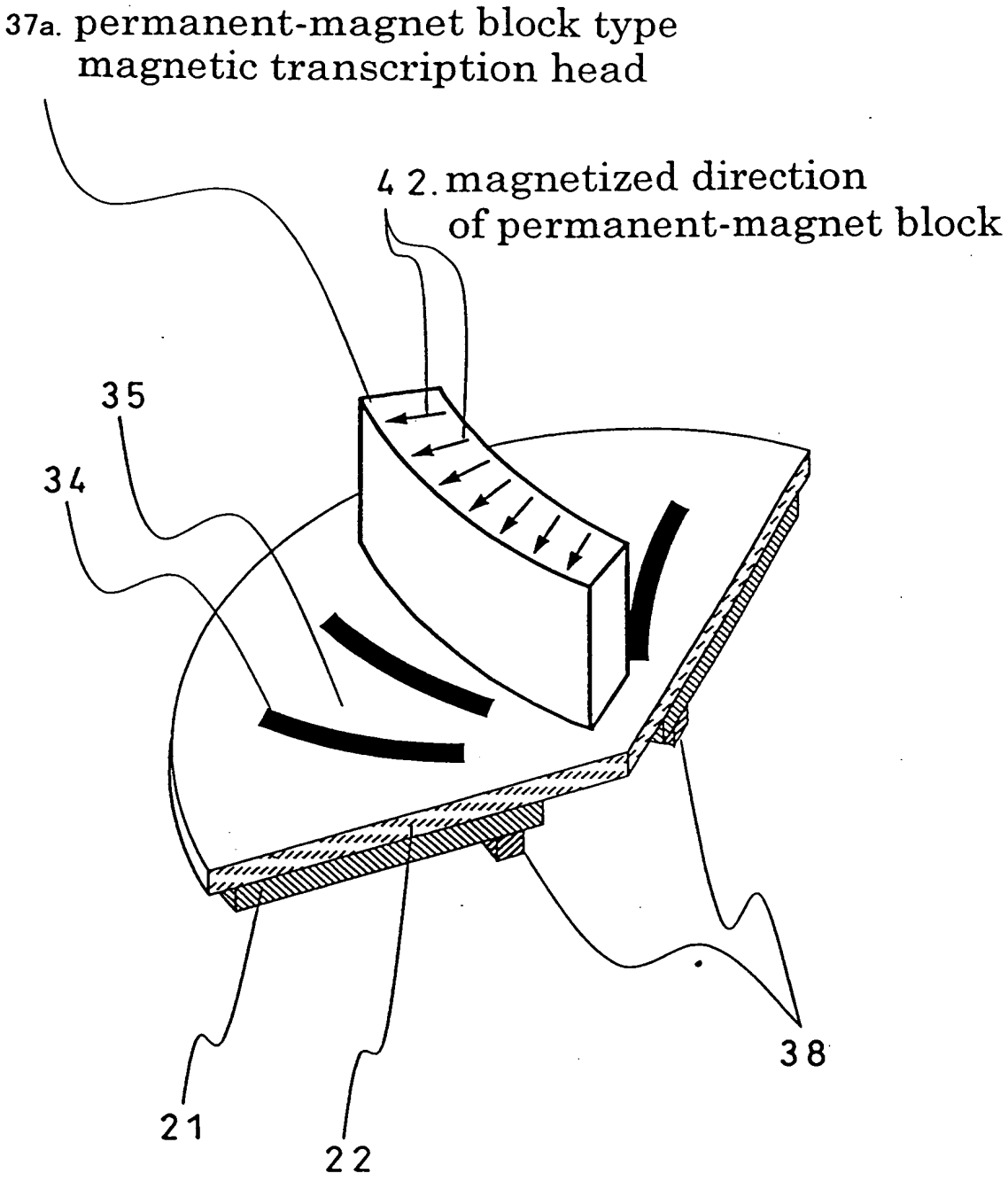

37a. permanent-magnet block type magnetic transcription head
42. magnetized direction of permanent-magnet block
35
34
38
21
22

FIG. 13

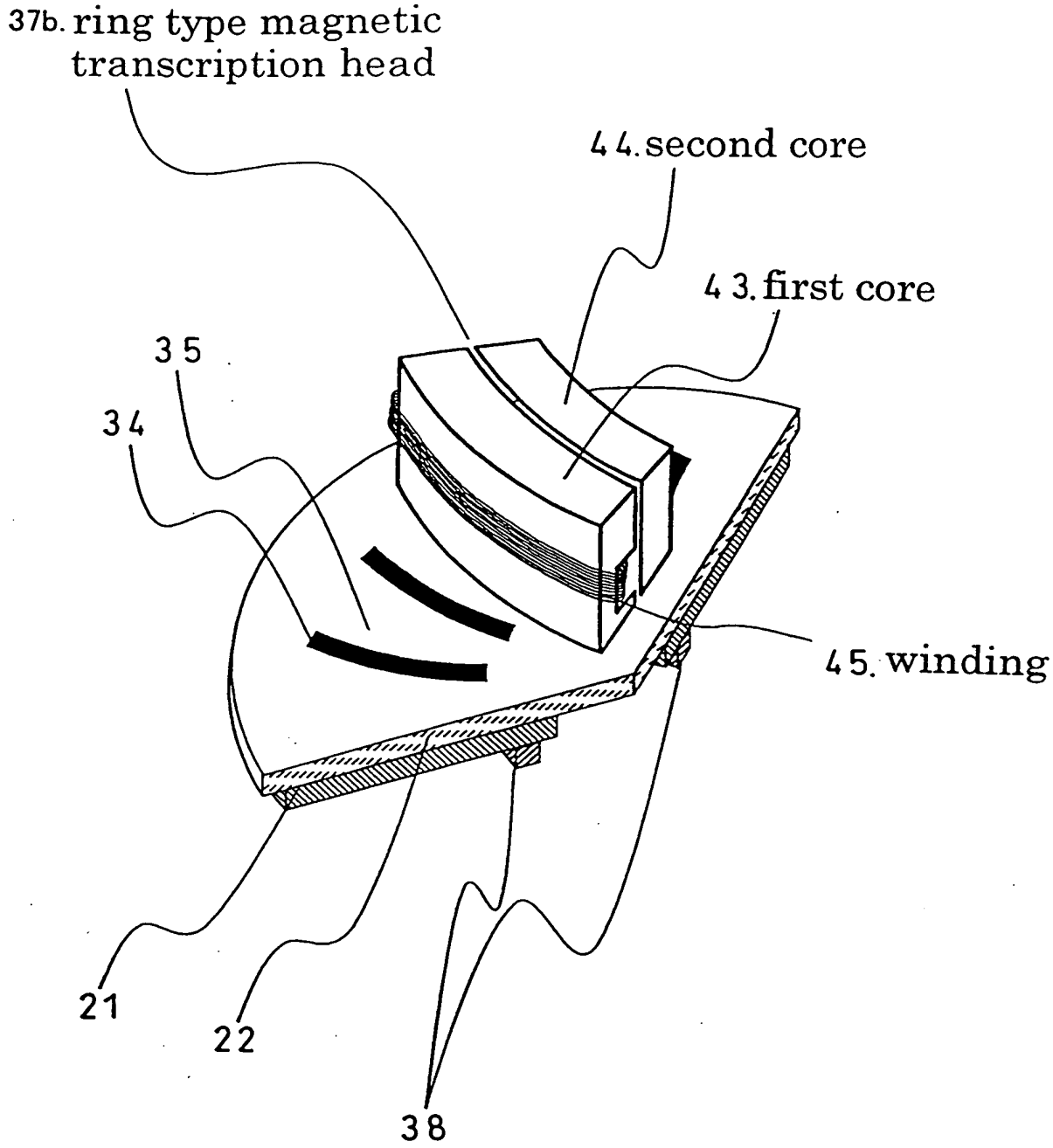

37b. ring type magnetic transcription head
44. second core
43. first core
35
34
45. winding
21
22
38

FIG. 14

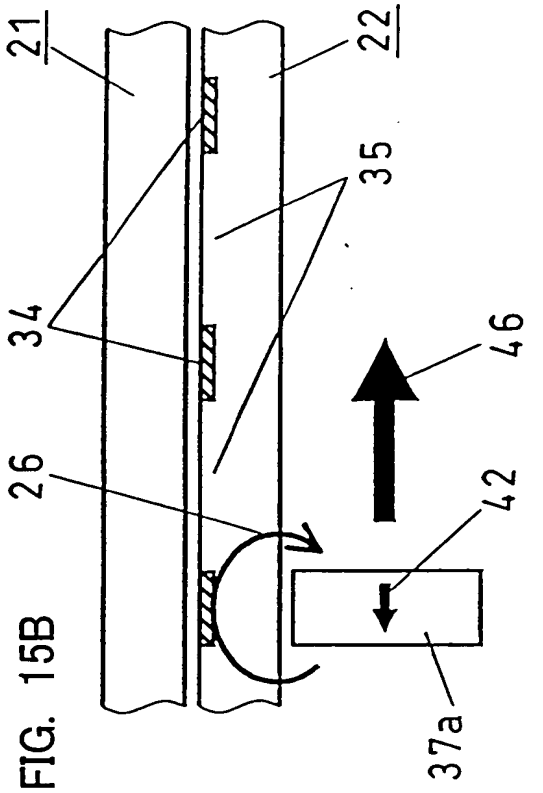


FIG. 15B

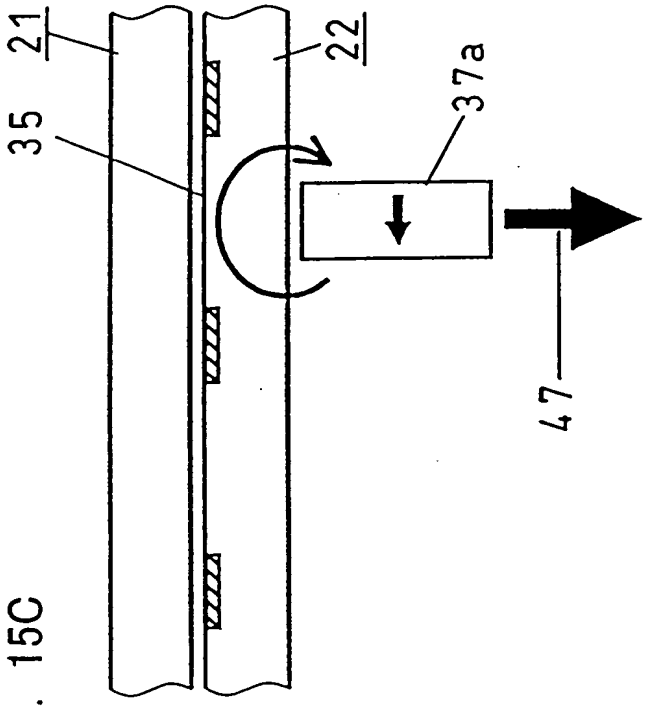


FIG. 15C

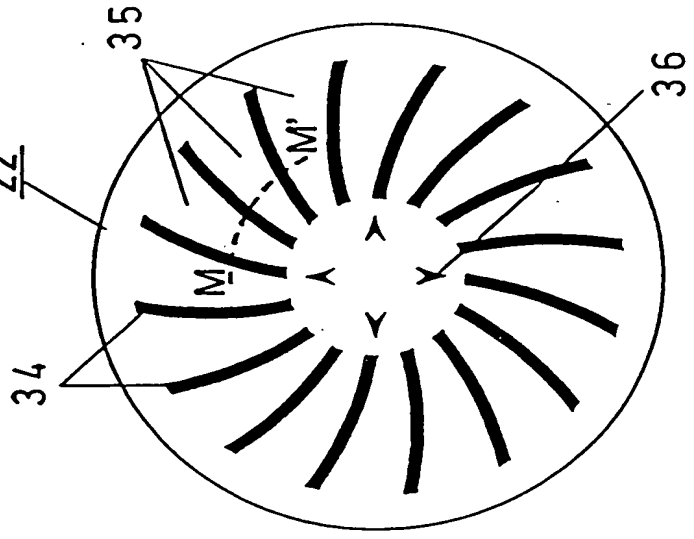


FIG. 15A

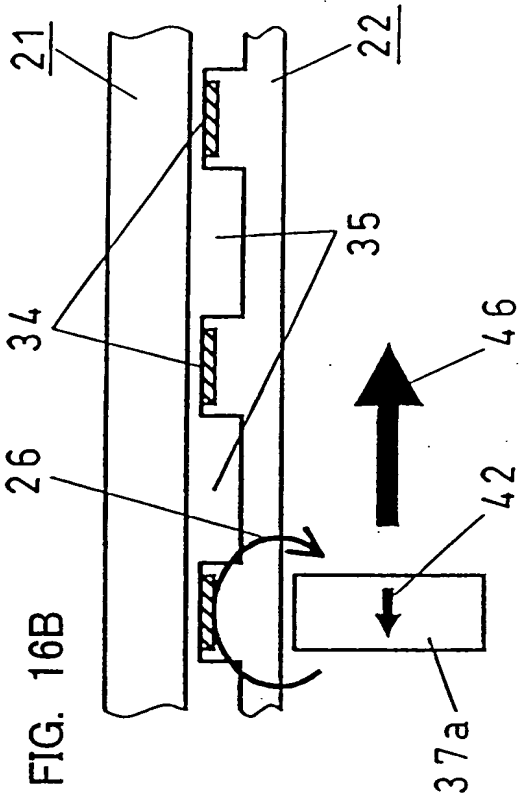


FIG. 16B

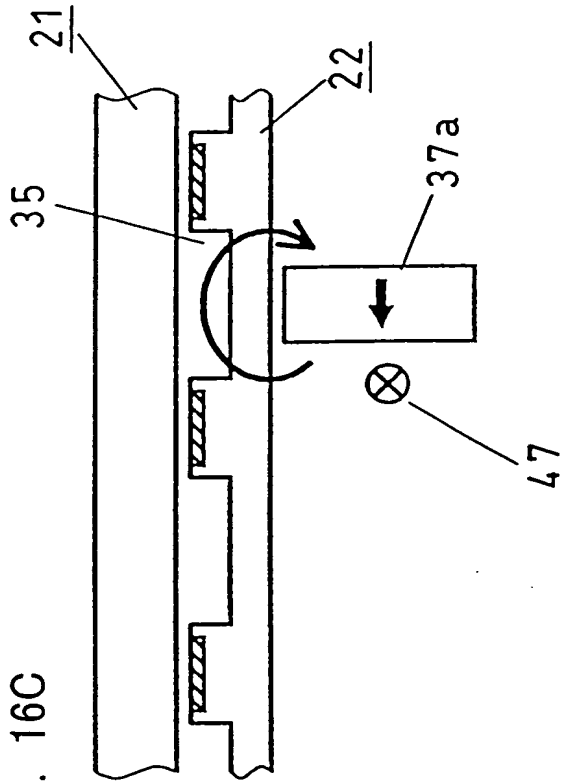


FIG. 16C

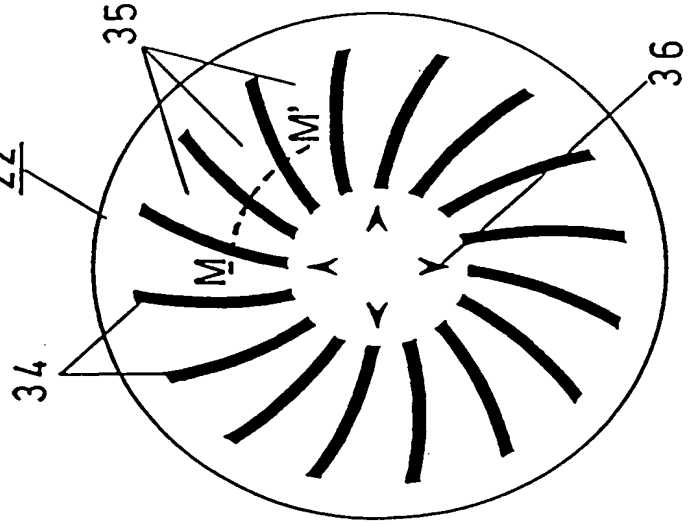


FIG. 16A

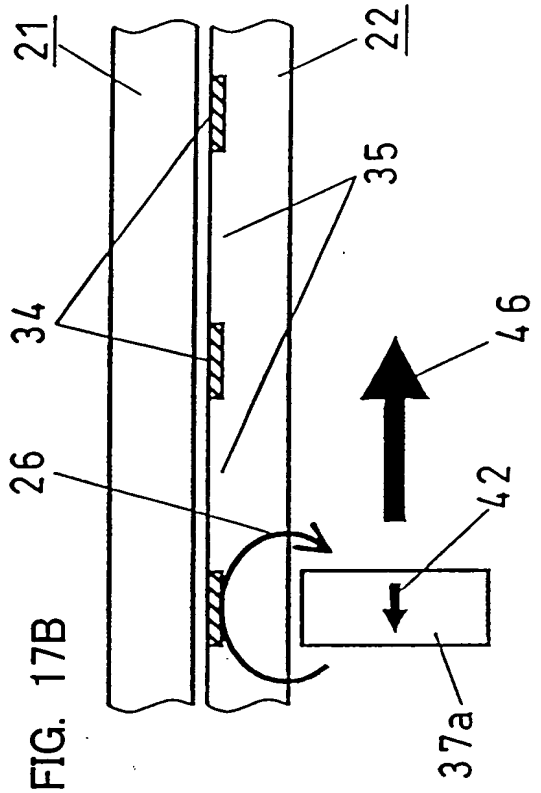


FIG. 17B

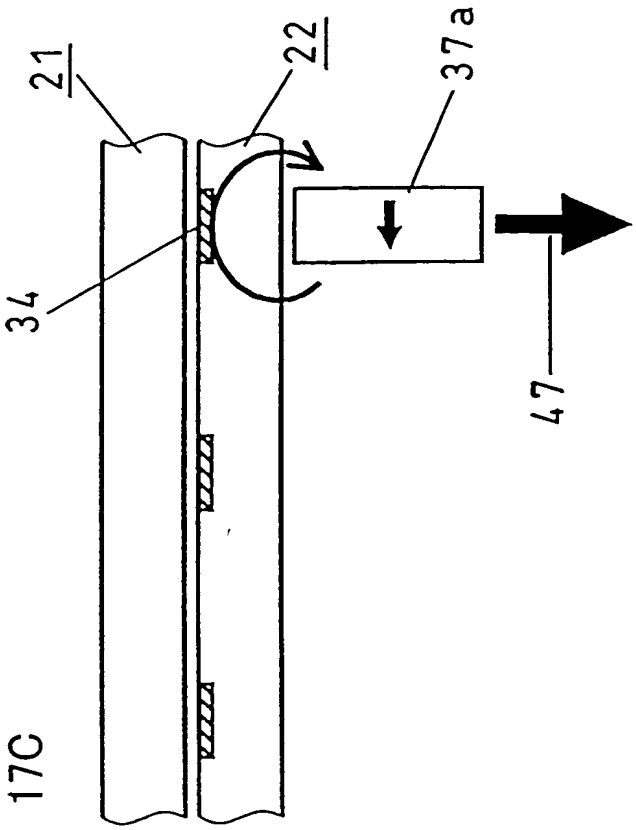


FIG. 17C

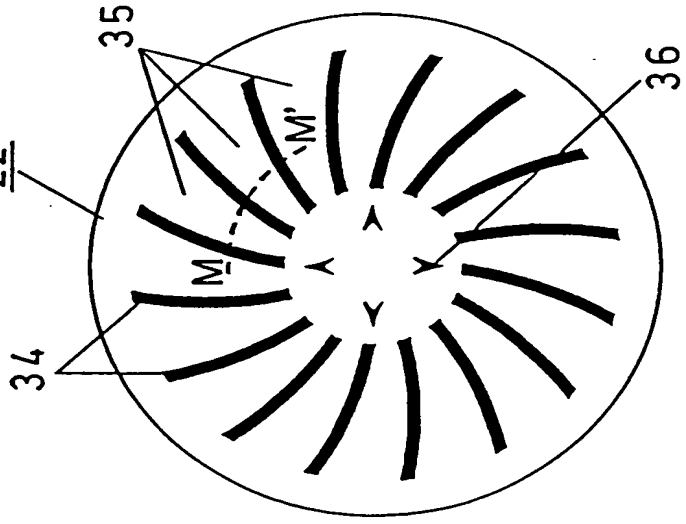


FIG. 17A

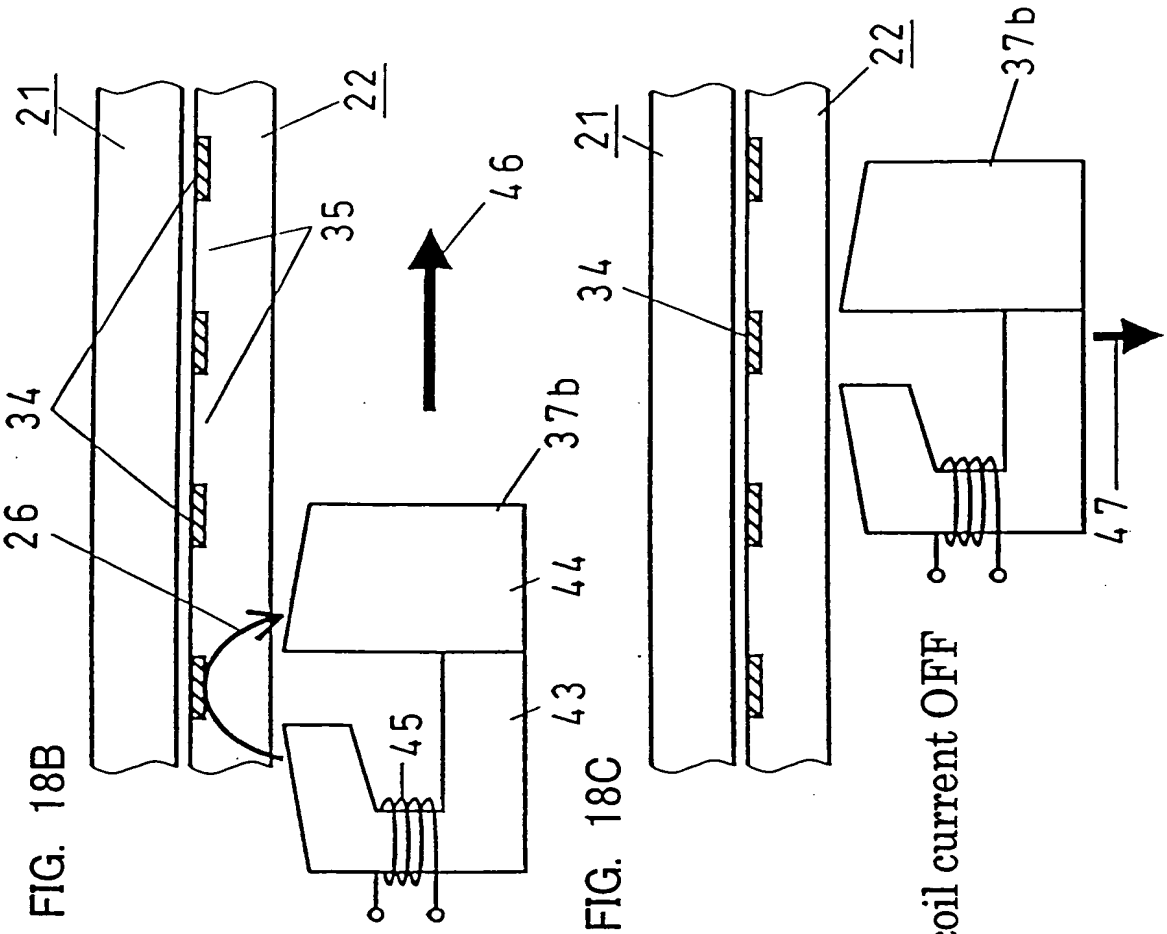


FIG. 18B

FIG. 18C

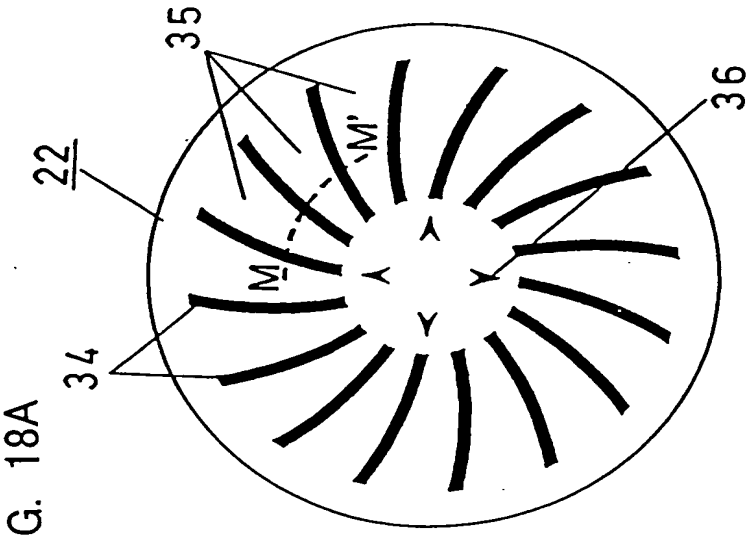
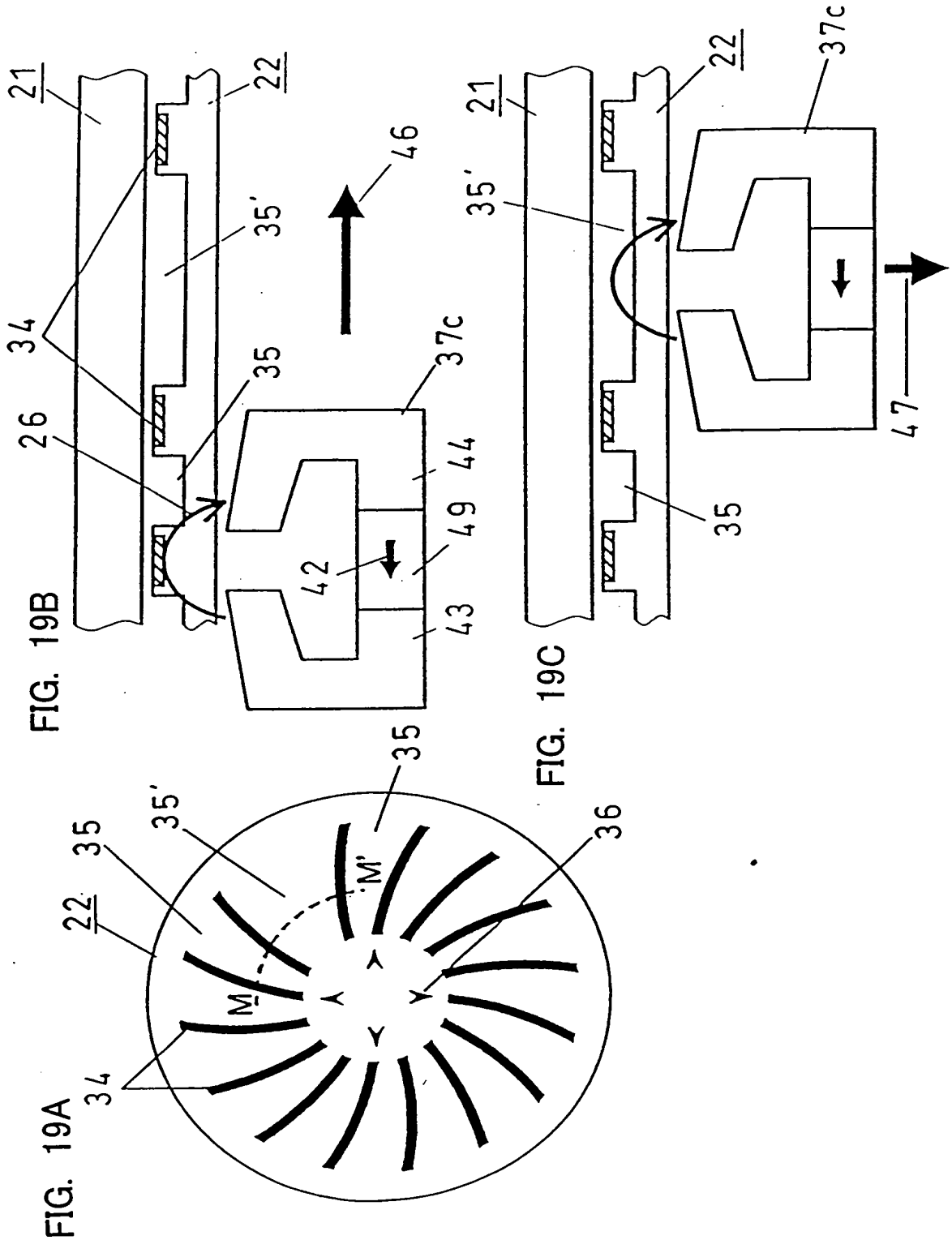


FIG. 18A


21
22
46
35'
34
35
37c
26
44
49
42
43
FIG. 19B
21
22
37c
35'
47
35
FIG. 19C
35
35'
35
36
22
M'
M
34
FIG. 19A

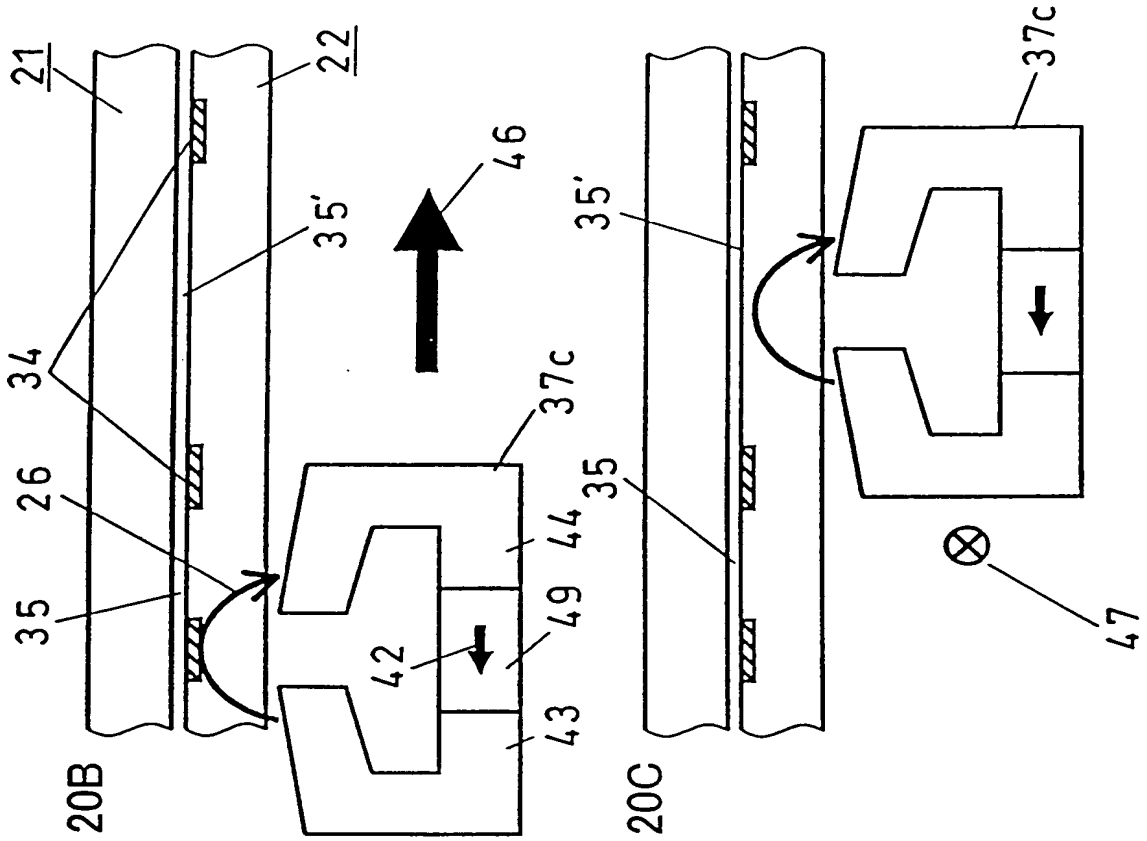


FIG. 20B

FIG. 20C

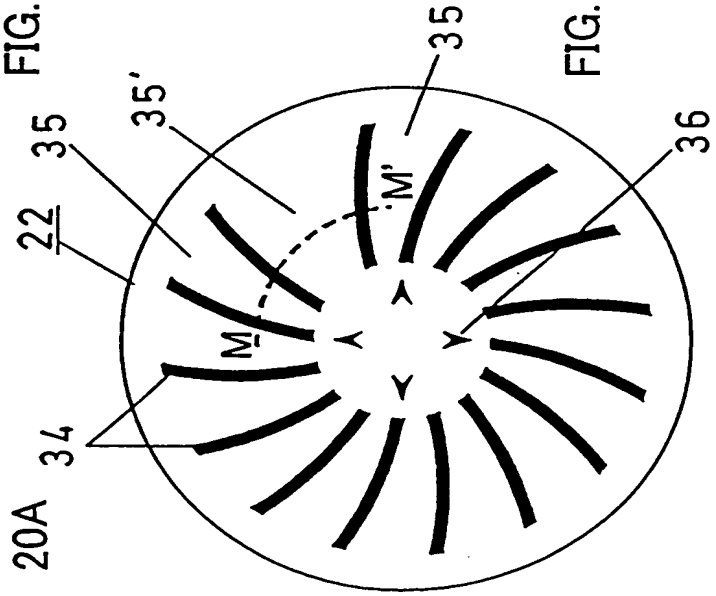


FIG. 20A

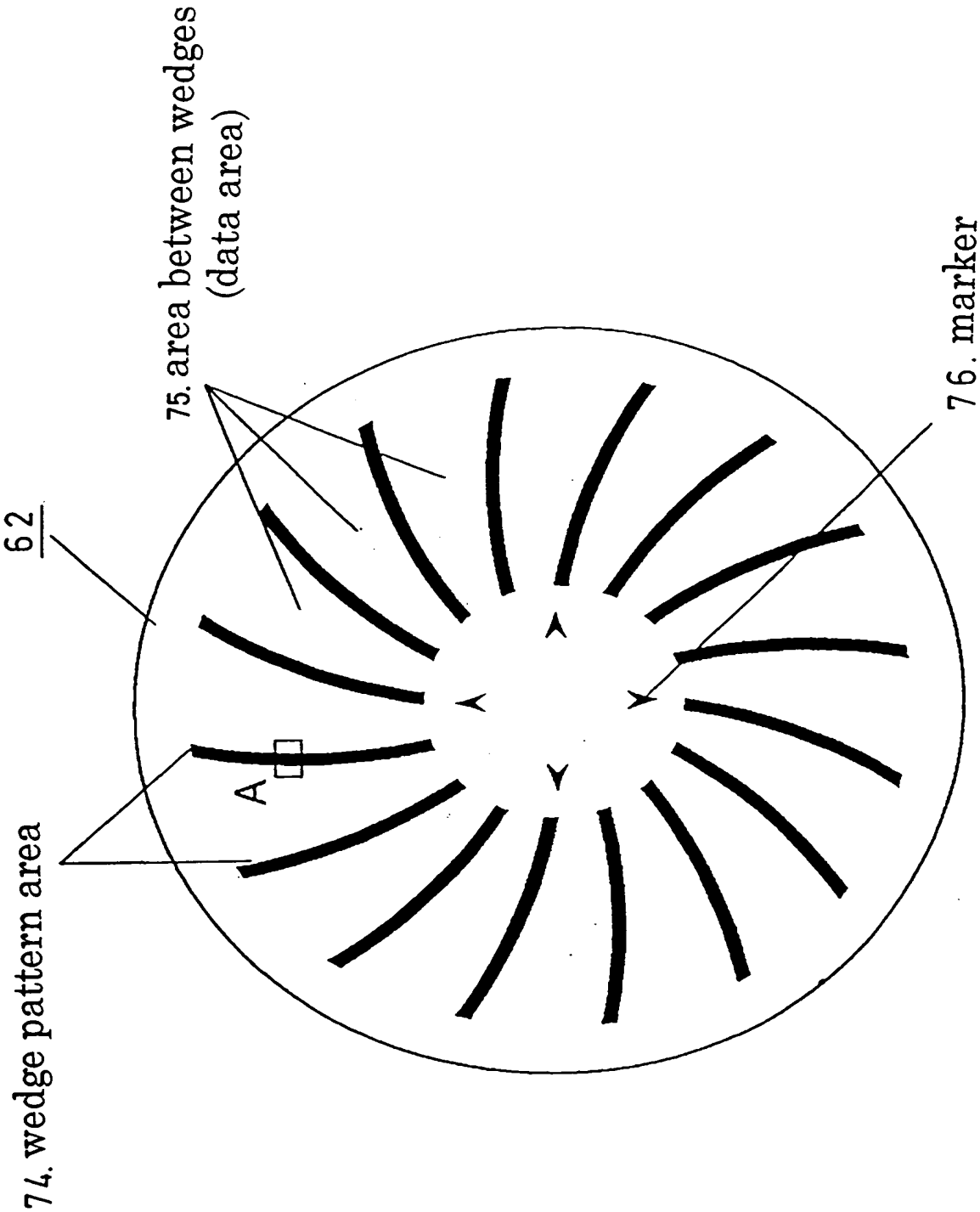

62
74. wedge pattern area
75. area between wedges (data area)
76. marker
A

FIG. 21

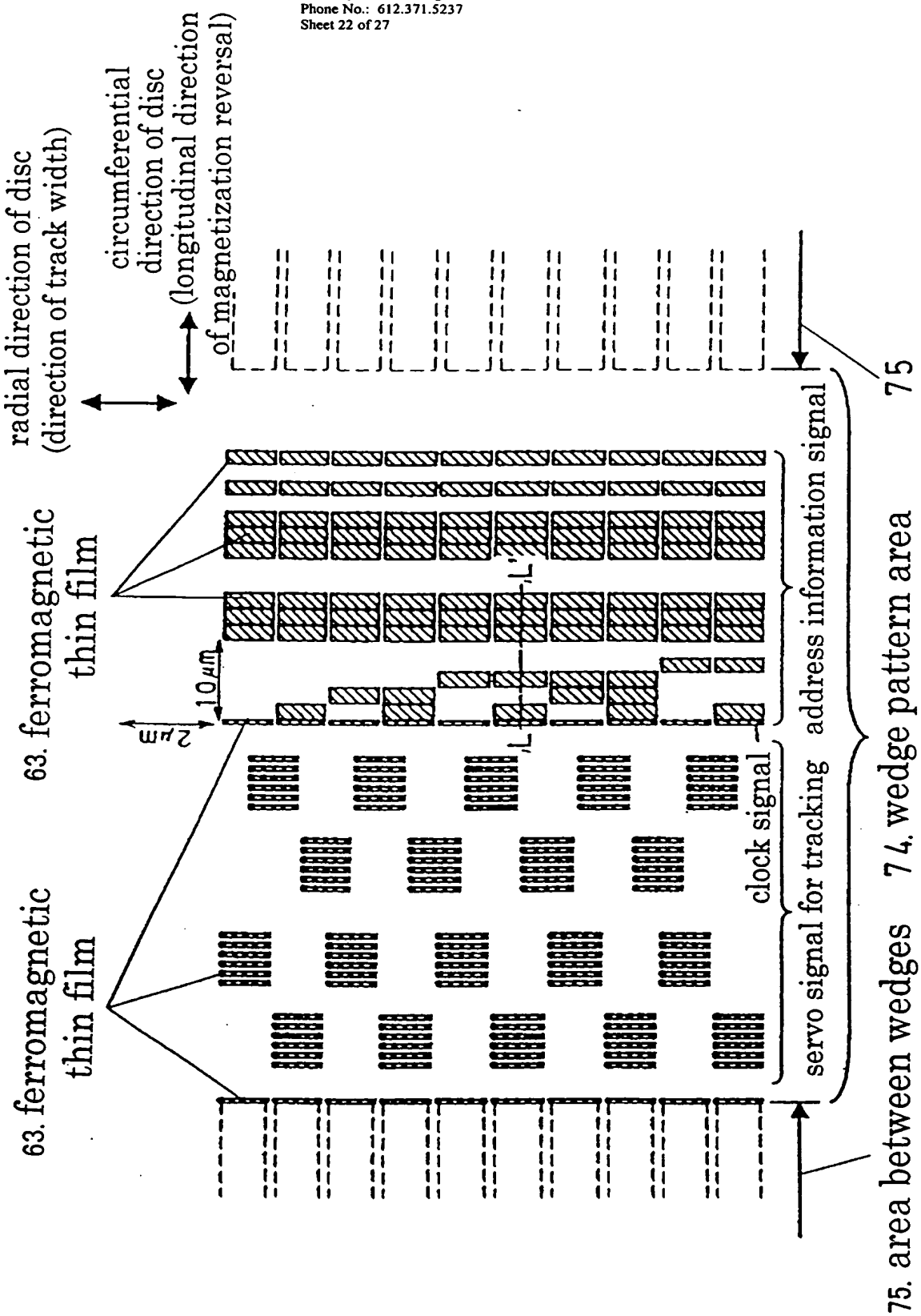

radial direction of disc
(direction of track width)
circumferential direction of disc
(longitudinal direction of magnetization reversal)
63. ferromagnetic thin film
63. ferromagnetic thin film
2μm
10μm
L
L'
clock signal
servo signal for tracking
address information signal
75
75. area between wedges (data area)
74. wedge pattern area

FIG. 22

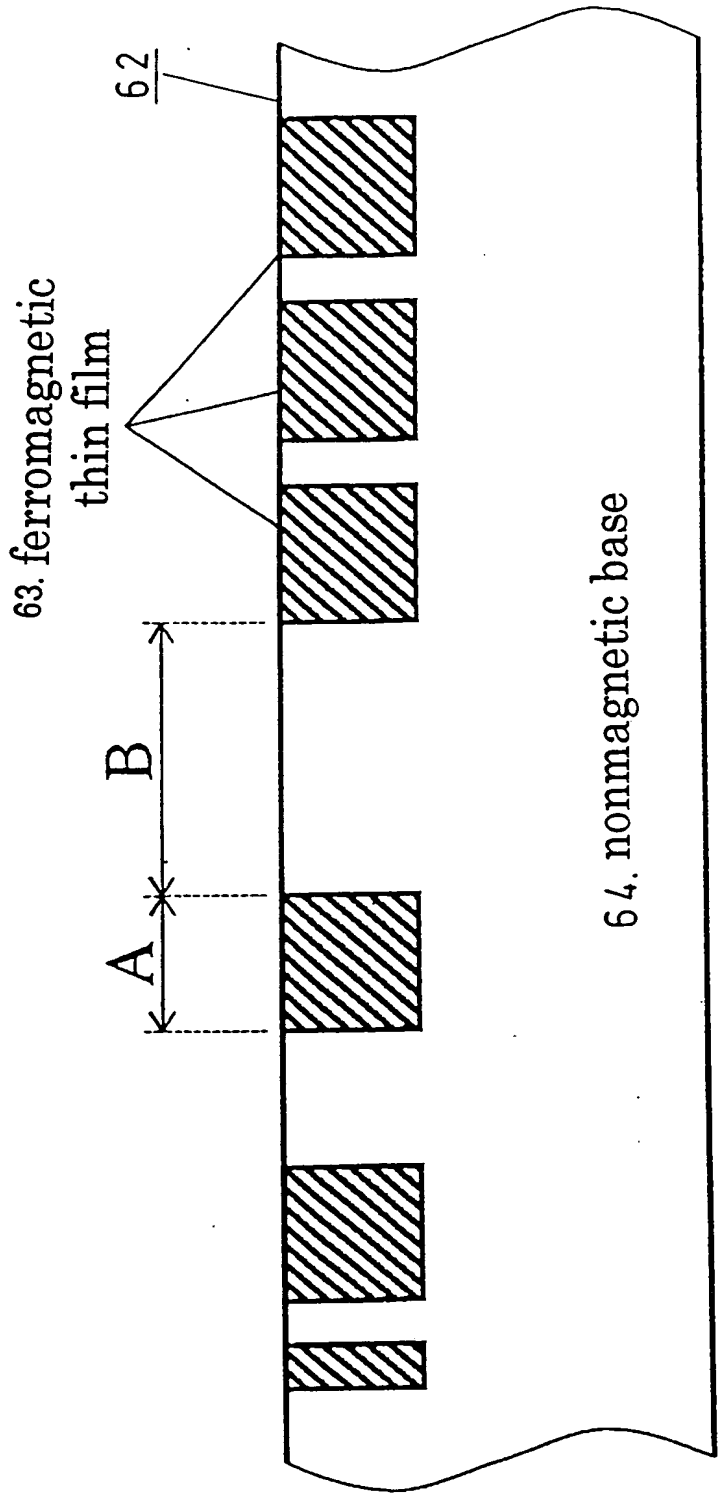


FIG. 23

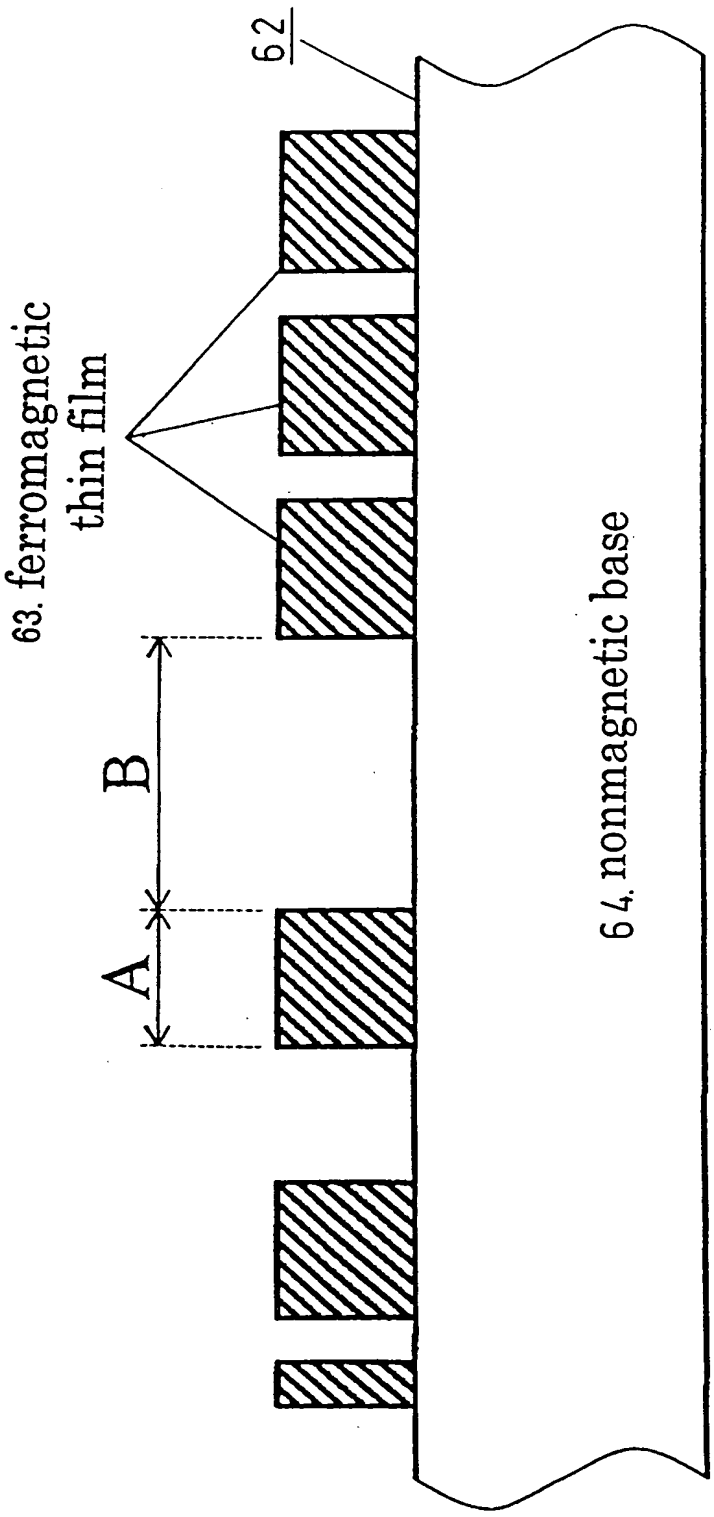


FIG. 24

FIG. 25A

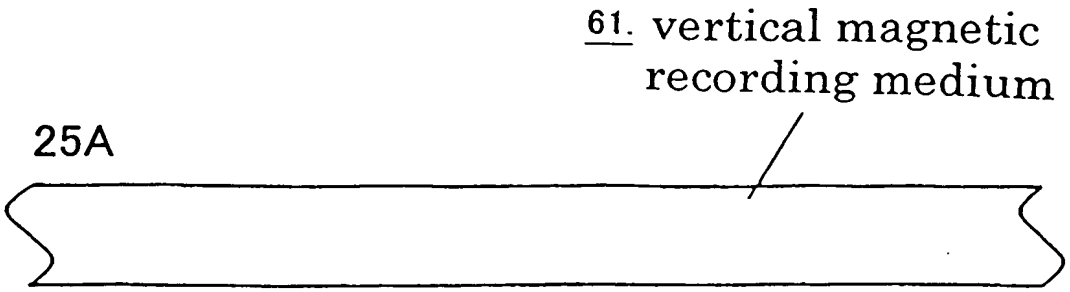


FIG. 25B

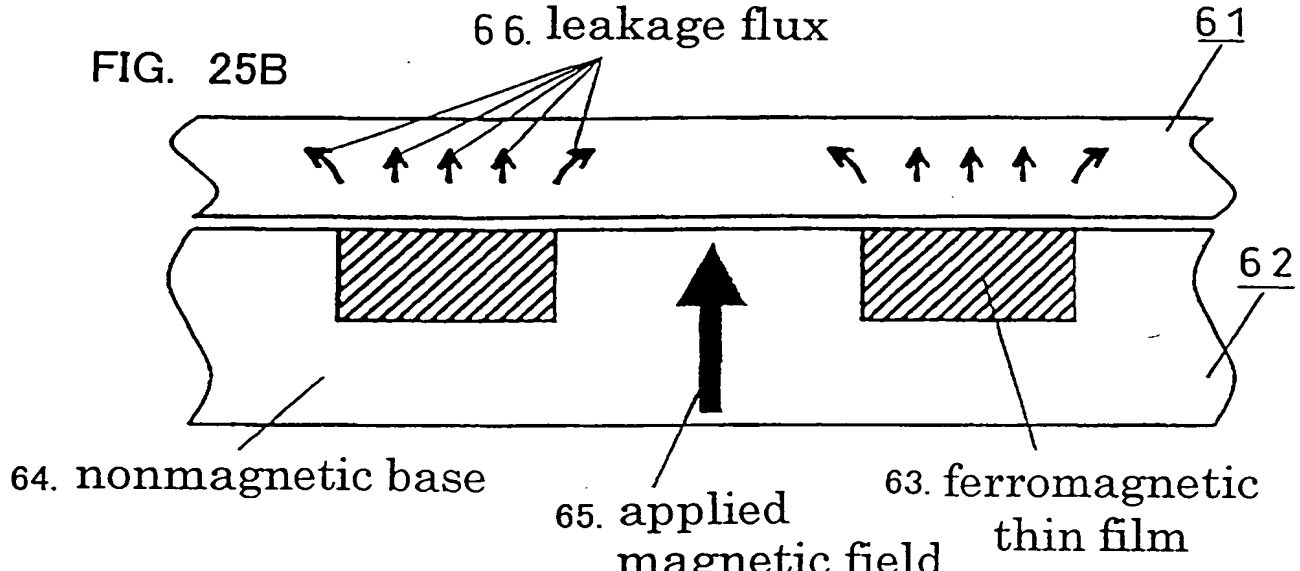


FIG. 25C

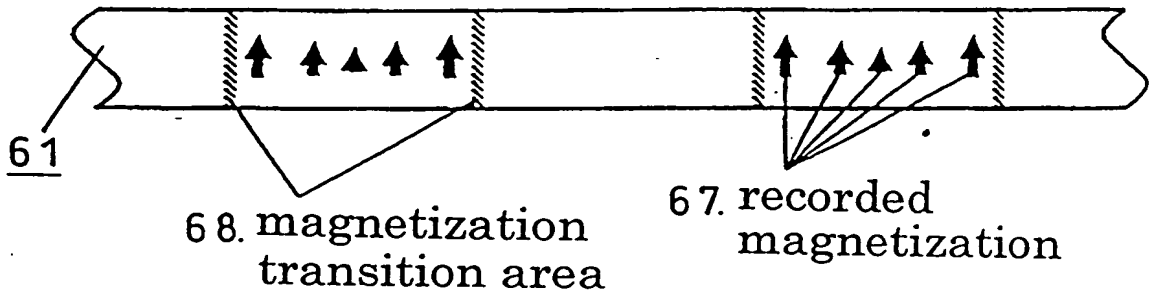


FIG. 26A

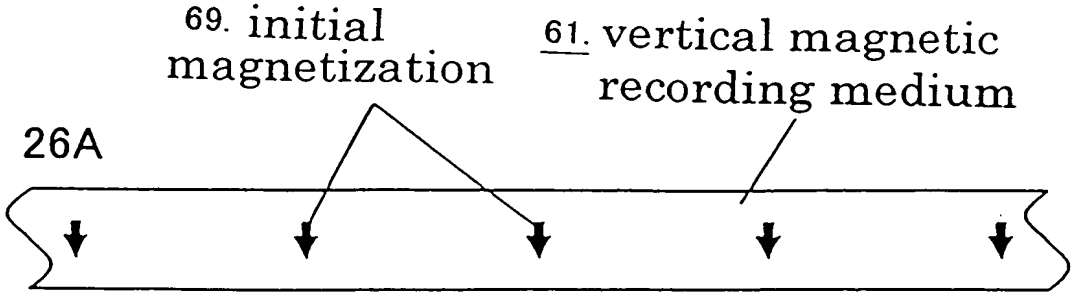


FIG. 26B

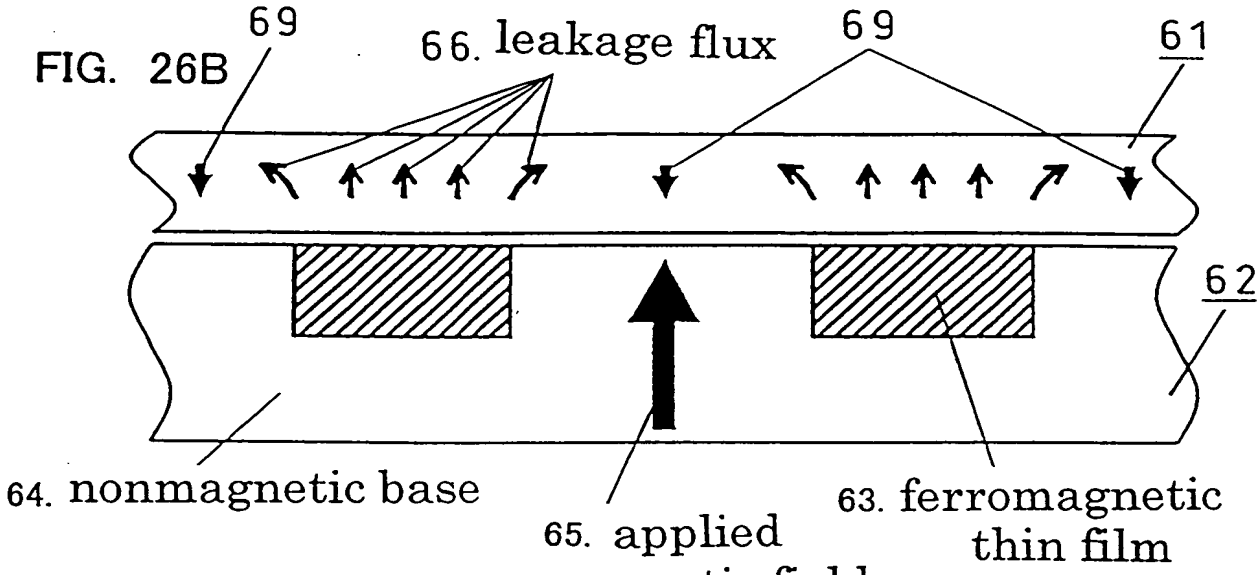
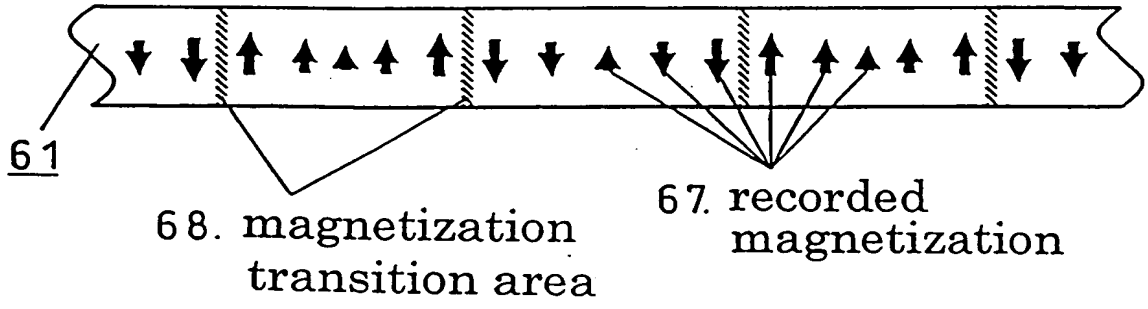


FIG. 26C



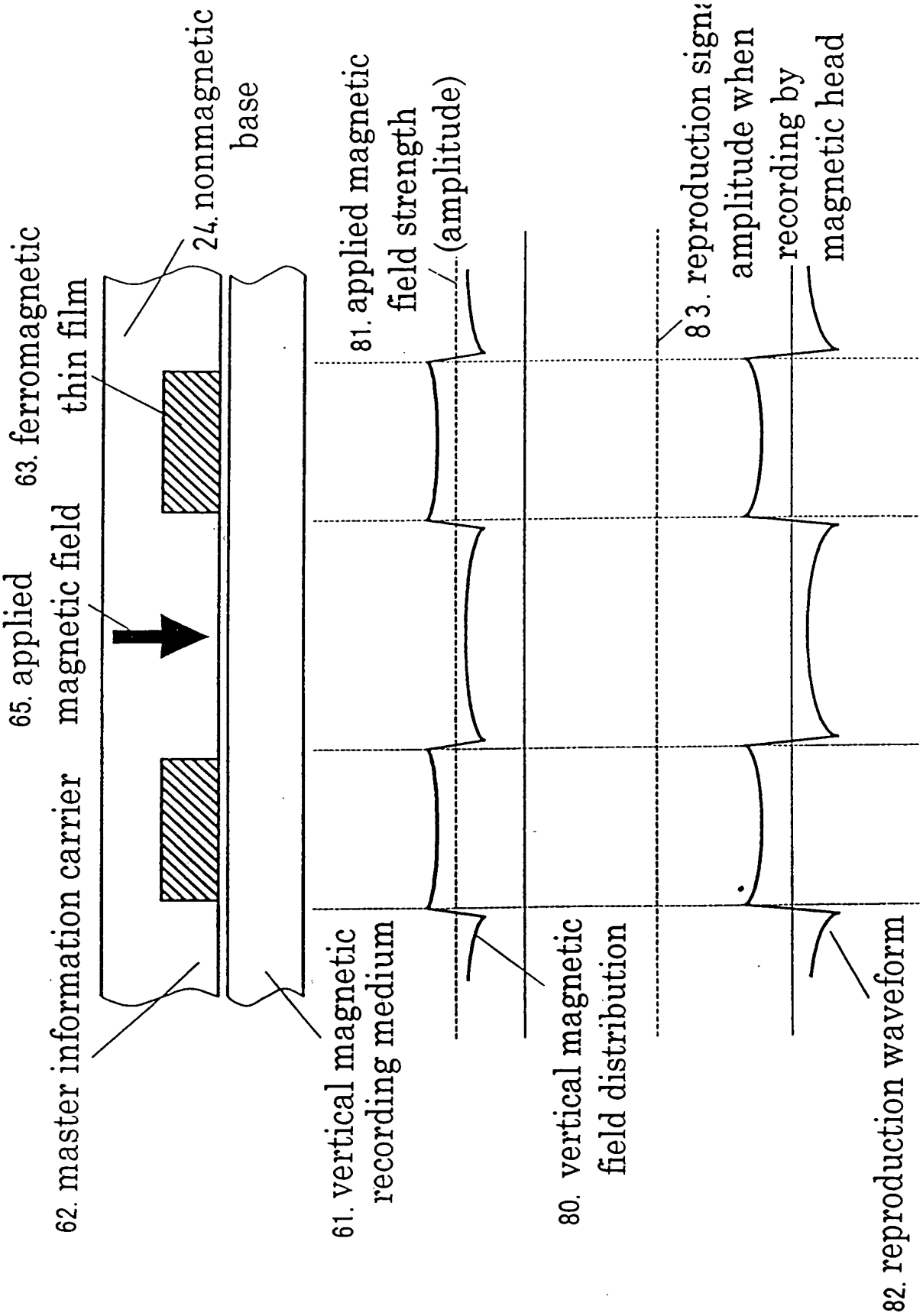

62. master information carrier
65. applied magnetic field
63. ferromagnetic thin film
24. nonmagnetic base
61. vertical magnetic recording medium
81. applied magnetic field strength (amplitude)
80. vertical magnetic field distribution
83. reproduction signal amplitude when recording by magnetic head
82. reproduction waveform

FIG. 27